IN THE CLAIMS:

Cancel claims 1-23.

24. (New) An optical fiber for attenuating an optical signal comprising a core and a cladding, wherein n (n≥2) kinds of dopants are included in the optical fiber for attenuating the optical signal,

wherein the concentration Wj (j=1, 2, 3, ..., n) in weight % is adjusted, with respect to a wavelength λi (i=1, 2, ..., m; m≥2), to satisfy the following expressions 1 and 2;

Expression 1

$$0.9 < \frac{\alpha(\lambda_i)}{\alpha(\lambda_k)} < 1.1$$

Expression 2

$$\alpha(\lambda_i) = \sum_{j=1}^{n} W_j A_j(\lambda_i)$$

wherein λi is a wavelength of the optical signal,

α(λi) is an attenuation amount of the optical fiber for attenuating the optical signal with respect to the optical signal having the wavelength λi,

K is a positive integral number,

(K=1, 2, ..., m) and (k≠i),

Wj is a concentration of dopant j, and

Aj(λi) is an attenuation of the optical fiber for attenuating the optical signal

with respect to the optical signal with wavelength λi and the attenuation Aj(λi) is produced by the dopant j of one unit.

25. (New) The optical fiber for attenuating optical signal according to claim 1, wherein said dopants comprise at least two kinds of transitional metals selected from the group consisting of Co, Ni, Cr, V, Fe, Mn, Tb and Tm.

26. (New) An optical fiber for attenuating an optical signal comprising a core and a cladding, wherein n (n≥2) kinds of dopants are included in the optical fiber for attenuating the optical signal,

wherein the concentration Wj (j=1, 2, 3, ..., n) in weight % is adjusted, with respect to a wavelength λi (i=1, 2, ..., m; m≥2), to satisfy the following expressions 1 and 2;

Expression 1

$$0.9 < \frac{\alpha(\lambda_i)}{\alpha(\lambda_k)} < 1.1$$

Expression 2

$$\alpha(\lambda_i) = \sum_{j=1}^{n} W_j A_j(\lambda_i)$$

wherein λi is a wavelength of the optical signal,

α(λi) is an attenuation amount of the optical fiber for attenuating the optical signal with respect to the optical signal having the wavelength λi,

K is a positive integral number,

(K=1, 2, ..., m) and ($k \neq i$),

Wj is a concentration of dopant j, and

Aj(λi) is an attenuation of the optical fiber for attenuating the optical signal with respect to the optical signal with wavelength λi and the attenuation Aj(λi) is produced by the dopant j of one unit, said dopants comprise at least two kinds of transitional metals selected from the group consisting of Co, Ni, Cr, V, Fe, Mn, Tb and Tm, and wherein the doped area said dopant is doped in the cladding is about six times an area of the core around the core as a center.

27. (New) The optical fiber for attenuating optical signal according to claim 25, wherein said wavelength λi of optical signal is in a range of 1200-1700 nm.

28. (New) The optical fiber for attenuating optical signal according to claim 27, wherein said wavelengths λi of optical signal are 1310 nm and 1550 nm.

29. (New) The optical fiber for attenuating optical signal according to claim 27, wherein said fiber for attenuating optical signal, with respect to said wavelengths λi of optical signal, operates in single mode.

30. (New) The optical fiber for attenuating optical signal according to claim 25, wherein said fiber for attenuating optical signal, with respect to said wavelengths λi of optical signal, operates in single mode.

31. (New) The optical fiber for attenuating optical signal according to claim 25, wherein, in said doped area, the distribution of said dopant is not uniform along the radius direction of said optical fiber.

32. (New) An optical fiber for attenuating an optical signal comprising a core and a cladding, wherein n ($n \geq 2$) kinds of dopants are included in the optical fiber for

attenuating the optical signal,

wherein the concentration Wj (j=1, 2, 3, ..., n) in weight % is adjusted, with respect to a wavelength λi (i=1, 2, ..., m; m≥2), to satisfy the following expressions 1 and 2;

Expression 1

$$0.9 < \frac{\alpha(\lambda_i)}{\alpha(\lambda_k)} < 1.1$$

Expression 2

$$\alpha(\lambda_i) = \sum_{j=1}^{n} W_j \; A_j(\lambda_i)$$

wherein λi is a wavelength of the optical signal,

α(λi) is an attenuation amount of the optical fiber for attenuating the optical signal with respect to the optical signal having the wavelength λi,

K is a positive integral number,

(K=1, 2, ..., m) and (k≠i),

Wj is a concentration of dopant j, and

Aj(λi) is an attenuation of the optical fiber for attenuating the optical signal with respect to the optical signal with wavelength λi and the attenuation Aj(λi) is produced by the dopant j of one unit, said dopants comprise at least two kinds of transitional metals selected from the group consisting of Co, Ni, Cr, V, Fe, Mn, Tb and Tm, and wherein said dopants comprise a dopant enabling the absorption of optical signal to increase as the wavelength becomes longer and a dopant enabling

the absorption of optical signal to decrease as the wavelength becomes longer that are simultaneously added.

33. (New) An optical fiber for attenuating an optical signal comprising a core and a cladding, wherein n (n≥2) kinds of dopants are included in the optical fiber for attenuating the optical signal,

wherein the concentration Wj (j=1, 2, 3, ..., n) in weight % is adjusted, with respect to a wavelength λi (i=1, 2, ..., m; m≥2), to satisfy the following expressions 1 and 2;

Expression 1

$$0.9 < \frac{\alpha(\lambda_i)}{\alpha(\lambda_k)} < 1.1$$

Expression 2

$$\alpha(\lambda_i) = \sum_{j=1}^{n} W_j \, A_j(\lambda_i)$$

wherein λi is a wavelength of the optical signal,

α(λi) is an attenuation amount of the optical fiber for attenuating the optical signal with respect to the optical signal having the wavelength λi,

K is a positive integral number,

(K=1, 2, ..., m) and (k≠i),

Wj is a concentration of dopant j, and

Aj(λi) is an attenuation of the optical fiber for attenuating the optical signal with

respect to the optical signal with wavelength λi and the attenuation $Aj(\lambda i)$ is produced by the dopant j of one unit, and wherein the doped area said dopant is doped in the cladding is about six times an area of the core around the core as a center.

34. (New) The optical fiber for attenuating optical signal according to claim 33, wherein said wavelength λi of optical signal is in a range of 1200-1700 nm.

35. (New) The optical fiber for attenuating optical signal according to claim 34, wherein said wavelengths λi of optical signal are 1310 nm and 1550 nm.

36. (New) The optical fiber for attenuating optical signal according to claim 35, wherein said fiber for attenuating optical signal, with respect to said wavelengths λi of optical signal, operates in single mode.

37. (New) The optical fiber for attenuating optical signal according to claim 34, wherein said fiber for attenuating optical signal, with respect to said wavelengths λi of optical signal, operates in single mode.

38. (New)The optical fiber for attenuating optical signal according to claim 33, wherein said fiber for attenuating optical signal, with respect to said wavelengths λi of optical signal, operates in single mode.

39. (New) The optical fiber for attenuating optical signal according to claim 38, wherein said dopants are at least two kinds of transitional metals selected from the group consisting of Co, Ni, Cr, V, Fe, Mn, Tb and Tm.

40. (New) The optical fiber for attenuating optical signal according to claim 33, wherein, in said doped area, the distribution of said dopant is not uniform along the radius direction of said optical fiber.

41. (New) The optical fiber for attenuating optical signal according to claim 33, wherein, the dopants comprise a dopant enabling the absorption of optical signal to increase as the wavelength becomes longer and a dopant enabling the absorption of optical signal to decrease as the wavelength become longer, which are simultaneously added.

42. (New)The optical fiber for attenuating optical signal according to claim 24, wherein said wavelength λi of optical signal is in a range of 1200-1700 nm.

43. (New) The optical fiber for attenuating optical signal according to claim 42, wherein said wavelengths λi of optical signal are 1310 nm and 1550 nm.

44. (New) The optical fiber for attenuating optical signal according to claim 24, wherein said fiber for attenuating optical signal, with respect to said wavelengths λi of optical signal, operates in single mode.

45. (New) The optical fiber for attenuating optical signal according to claim 24, wherein, in said doped area, the distribution of said dopant is not uniform along the radius direction of said optical fiber.

46. (New) An optical fiber for attenuating an optical signal comprising a core and a cladding, wherein n ($n \geq 2$) kinds of dopants are included in the optical fiber for attenuating the optical signal,

wherein the concentration Wj (j=1, 2, 3, ..., n) in weight % is adjusted, with respect to a wavelength λi (i=1, 2, ..., m; $m \geq 2$), to satisfy the following expressions 1 and 2;

Expression 1

$$0.9 < \frac{\alpha(\lambda_i)}{\alpha(\lambda_k)} < 1.1$$

Expression 2

$$\alpha(\lambda_i) = \sum_{j=1}^{n} W_j A_j(\lambda_i)$$

wherein λi is a wavelength of the optical signal,

α(λi) is an attenuation amount of the optical fiber for attenuating the optical signal with respect to the optical signal having the wavelength λi,

K is a positive integral number,

(K=1, 2, ..., m) and (k≠i),

Wj is a concentration of dopant j, and

Aj(λi) is an attenuation of the optical fiber for attenuating the optical signal with respect to the optical signal with wavelength λi and the attenuation Aj(λi) is produced by the dopant j of one unit, and wherein said dopants comprise a dopant enabling the absorption of optical signal to increase as the wavelength becomes longer and a dopant enabling the absorption of optical signal to decrease as the wavelength becomes longer that are simultaneously added.